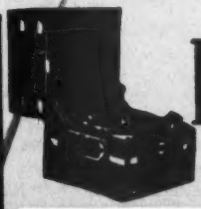
The American Horologist

INCORPORATING

HOROLOGY

THE NATIONAL MAGAZINE
FOR ADVANCEMENT IN TIMEKEEPING



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Manufacturers

• NEW YORK

Vol. II MAY, 1944 No. 5

ELEVENTH YEAR OF PUBLICATION

A TIMELY "QUIZ" FOR ALERT JEWELERS

1. *"What will happen when well-known quality products like Hamilton watches, now away at war, come back to the market place?"*

2. *"Will customers continue to buy much of the replacement merchandise retailers have been able to find and stock during wartime shortages of many quality lines?"*

3. *"Will the dislocations of reconversion tighten up purse strings and postpone many ambitious buying plans conceived under the stimulus of inflated wartime earnings?"*

4. *"Will the present sellers' market then change quickly to a buyers' market, with the rewards going to dealers who are in a position to convert their stocks rapidly?"*

5. *"Will disillusioned wartime customers then make new retailer contacts in their quest for merchandise which is known through experience or reputation to be dependable?"*

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ELEVENTH YEAR OF PUBLICATION

The AMERICAN HOROLOGIST

Incorporating HOROLOGY

Published Monthly

By Roberts Publishing Co., Denver, Colorado, in the interest of the Horological & Jewelry Industry.

To advance Education | To assist in Obtaining State Legislation | To Develope Standardization | To Encourage & Recognize Effort & Ability

Advertising and Editorial Offices: 226-228 16th Street, Denver, Colorado

London: Malcolm Gardner, 12 Earnshaw St., New Oxford St.

Volume II | MAY, 1944 | No. 5

Official National Publication of the United Horological Association of America, Inc., and all its affiliates, who operate as a united body toward the advancement and upliftment of the Horological and Jewelry Industry.

PRICE

25c per copy, $2.00 per year in United States, $2.50 per year in all foreign countries. Members of U. H. A. A. receive the paper as part of their membership benefits.

ADVERTISING RATES ON REQUEST

Contributions and advertising material must be received not later than the 25th of the month preceding publication.

CHANGE OF ADDRESS

Change of address must be made prior to 5th of month to effect the forthcoming issue of the magazine. Both old and new addresses must be given.

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(Entered as second-class matter July 19, 1941, at the Postoffice in Denver, Colorado, under the act of March 3, 1879).

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LOOKING FORWARD

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ODD But TRUE

By Weil

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EARLY SECRETS OF WATCHMAKING WERE CLOSELY GUARDED AND HANDED FROM GENERATION TO GENERATION.....
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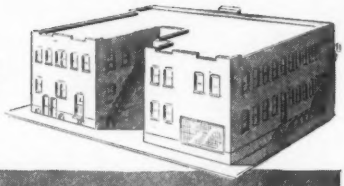

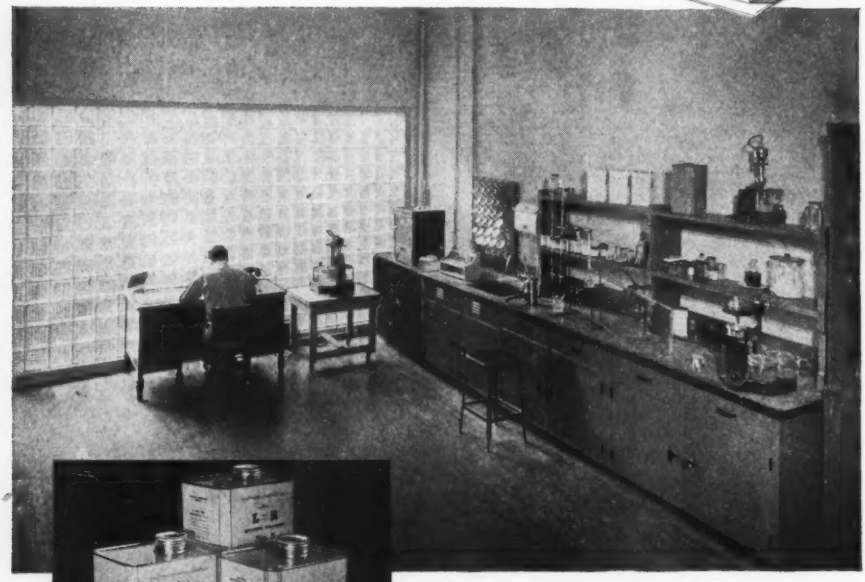

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Business At War

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Scratch This Backlog

U. S. watch manufacturers face the future with mixed emotions. Like the more optomistic manufacturers of automobiles and refrigerators, they are engaged strictly in remunerative war work, making ship and airplane chronometers, and other precision instruments. They are also making some watches, but almost exclusively for G. I. Their sales and profits are at record highs; and their plants, equipped with much new machinery, will probably emerge from the war in better shape than ever. Still their future is as clouded as Chrysler's and General Motors' would be if some European neutral were filling American garages with the equivalent of Dodges and Chevrolets. For the U. S. consumers' wrists are being decorated and their pockets depleted by Swiss watches and the backlog in watch demands is being wiped out. In normal times U S. watch manufactureres sold around $25 million worth of watches a year. That is almost exactly the amount by which Swiss watch manufacturers have increased their exports to the U. S. in the past two or three years.Millions of relatives and sweethearts have bought watches for departing servicemen and women, and even industrial workers in boom towns have found enough timepieces. If you are not too style-conscious, you can still buy plenty.

Twenty years ago there were about fifty Swiss watch importers in the U. S. and they controlled less than half of the jeweled-watch market. (A prohibitive tariff barred them from the $1 watch trade). By 1939 there were about 125 and they sold two of every three jeweled watches. Today there are more than 250, and they have a virtual monopoly of the whole watch business. Many of the new importers are refugees who had contacts with manufacturers abroad. Some of them have set up here what they hope are permanent establishments; the rest are fly-by-nighters of the kind who spring up in every flourishing market.

The Swiss watch-monufacturing system made it easy for new importers to start business. There are about1,200 Swiss watch factories, but only thirty make complete movements and sell them exclusively under their own tradenames. Probably the largest of these is Tavannes; others are Patek-Philippe, Vacheron & Constantin, Meylan, and Omega. The 1,170 that make most Swiss watches are assembly plants. Some have as many as 400 workers, but most are run by a few men with a little credit, who buy parts from factories specializing in plates, bridges, main and hair springs, wheels, winders, dials, jewels. These assemblers usually have no tradesnames, but are glad to christen their watches with any name desired by Swiss dealers or foreign importers. The Lathin Watch Co., has sold the same watch as a Latham, then as a Lorten and Lathin. Practically all a U. S. importer needs to market a "brand-new" watch is imagination and a Swiss contact.

The Swiss have been eager for contacts. Watchmaking has become their largest industry. One of every eight factory workers is in it, while in Alpine foot hills and fastnesses, rural families still eke out their incomes finishing watch parts and subassemblies. The Swiss have been making watches for centuries and are immensely proud of their handiwork. Since the war they have lost their markets in Norway, the Netherlands, France, Belgium, Italy, and many other countries and have depended upon the Western Hemisphere to take up the slack. U. S. importers have been eager to oblige them. In 1939 the U. S. took 2,905,000 units worth $11,500,000 **or 25 per cent of Swiss watch exports;** and in 1943 6,500,000 units worth $35 million, or more than 50 per cent. Most come uncased, for there is a high U. S. tariff on watchcases, es-

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The biggest importer before the war was Bulova, whose factory in Switzerland produced almost exclusively for the American market. Well behind Bulova were Longines, Gruen, and Benrus. These four are still the leaders, but other old companies like Wyler, Eterna, and Mido, and a host of new ones like Crawford, Driva, Rensie, and Defender have been striving through national advertising campaigns to gain permanent places in the U. S. Market. For the first time, nondescript Swiss producers of cheap nonjeweled watches have also vaulted over the tariff wall into the American market. Heretofore, these watches were sold to India, Iran, Siberia, and Africa, Now, under names that the OPA has a difficult time keeping track of, they have become an exorbitantly priced staple in the shops of many unscrupulous U. S. retailers. These are the ones to look out for.

One of the minor miracles of the war is Swiss ingenuity in keeping up deliveries. In peacetime Swiss watches were sent around the world from Le Havre and Cherbourg in ships flying every flag. When France was invaded, these ports became inaccessible and the Swiss turned to nearby Genoa and the still neutral Italian merchant fleet. Italy's declaration of war took her ships out of ordinary commerce and landlocked Switzerland. The Swiss then purchased or chartered about a dozen chugging old tubs from Greece, Yugoslavia, Panama, and other countries, creating, of all things, a Swiss merchant marine. This fleet operated out of Genoa until the Germans moved in, then shifted base to Lisbon. Watches were sent there either via railroad to Marseilles or more regularly by truck to Barcelona and Bilboa and then by small boat to Lisbon.

Transportation costs naturally have risen steeply. and they are being pushed still higher by the constant shortage of general cargo. Germany, from whom transit permits must be obtained, has restricted Swiss exports; and we have cut our Swiss exports to the bone. As a result, even though German restrictions are frequently evaded, the holds of westbound Swiss ships are rarely more than 20 per cent filed. Except for Red Cross and other relief shipments, they are practically empty eastbound.

This has created another problem even more important than rising shipping costs. Unable to buy American goods, the Swiss National Bank has accumulated in the U. S. an excess of dollars, for which the home office has released to Swiss watch manufacturers an equivalent amount in francs. These are so much more plentiful than commodities in Switzerland that the bank is fearful of inflation there. Like others with money in U. S. banks, it is also fearful of inflation here. Thus the Swiss Bank decided in the summer of 1943 to limit its monthly remittance to watch manufacturers to 8,500,000 francs. This, in effect, limited their exports to dollar countries to that amount. U. S. importers, placed on a monthly quota basis, were allowed watchces worth about 4,500,000 francs—or at a rate of 54 million francs a year. This was approximately 10 million francs worth of watches more than they imported in 1939, but a substantial reduction from current rate of imports.

But many importers were not checked by Swiss quotas any more than they were checked by earlier German restriction. Some had large numbers of watches shipped to Latin America and reshipped here at high additional cost. Others, avoiding the Swiss banks altogether, bought all the francs they could find here from refugees and U. S. speculators. This sent the "free franc" past 44 cents (the Swiss franc is pegged at home at 23.4 cents) and doubled the cost of watches bought with free francs.

American importers were so hungry for watches they did not mind paying extra costs. But OPA soon got after the black market. By last February it had ended free-franc

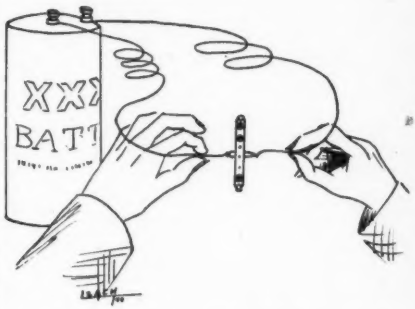
markups and reduced South American reshipments by refusing to sanction high prices based on inflated transportation costs. This intensified Swiss manufacturers' and U. S. importers' pressure on Swiss Bank for increased quotas. And last March the bank agreed to double its monthly remittances to exporters selling watches to dollar countries. This immediately sent the free franc down to 28 cents.

Since September, 1943, an average of 20 per cent of all watch imports has been reserved by WPB for sale at Army posts and Navy stores. Civilians can buy the rest. Except in a few special waterproof and shockproof styles, there are still plenty, for imports are probably near their peak.

Removing Staffs

By Calvin W. Leach

Here is a tip you may wish to pass on to the readers of The American Horologist. Most watchmakers who prefer removing staffs by turning the seat off, often find the staff as hard as the graver and must draw the temper from the staff. Here is my solution:



When the dry cells which I use for gold plating jewelry become too weak for efficient work I use them to draw the temper from staffs, thus:

Attach the two wires from the battery to the ends of broken staff until the temper is drawn. It works.

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Why The Lack of Replacement Parts (Second Phase)

After a complete survey of raw material stock piles, it was necessary to compile inventories at factory production point to determine availability of certain products, essential civilian needs plus required factory supplies for war project schedules.

These facts were obtained and an apportionment plan set into motion to divide all products between producing plants and civilians. Many times we were in disagreement with the divisions, but now we can see the wisdom that governed the whole procedure.

Plants were advised to reduce quantities made for civil use and fabricate all available materials on hand into finished items. Then war contracts were entered into for entire production ability of plants and personnel with requests that schedules of production be increased as rapidly as possible. We all know now the end product of this program literally staggers the imagination. Men, machinery, tools and supplies poured and still pouring in a swelling stream; the prime essentials for winning the war, planes, ships, tanks, guns, and ammunition, a miracle in motion. But, you want to know about those replacement parts; don't go away—I'll be telling you about that soon.

While nation after nation of Europe was being crushed by the juggernaut war, one small country was being surrounded by the Nazis. No war was carried into the country because Germany knew there was the greatest concentration of precision equipment and machinery in all continental Europe-Switzerland. Had they desired to crush Switzerland, it would have been done. But, that vast array of precision equipment was needed by Germany—thus surround and cut off this little country so she could only bargain for her neutrality. How

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could she be neutral with Germany dominating every avenue over which her products could be shipped. A deal must be made so Germany could get war necessities produced by that machinery. Now, bear in mind, Germany intends to win this war with every conceivable means at her command. This precision equipment and the products for war it could produce was needed badly. So little Switzerland was offered a deal-Liberty—use of her own money-manufature of watches—a neutral position-communication and commerce with America-a unique position in war-torn Europe. Switzerland accepted, only to learn Germany was the master and would dictate what and how much was to be produced and to whom it was to be sold. This all plays an important part in the proceedings.

Germany had told the world that conquering America would be an inside job—sabotaging, propaganda, and other means at her command would liquidate America and cause her crack-up. America having adopted a production time table was vulnerable. She was and is dependent on what timepieces could be produced here plus those that would be imported from Switzerland.

Now have a look at the picture. In all probability about one half the workers in American production plants depend on a time-piece of Swiss origin.

Last and concluding phase to appear in next issue.

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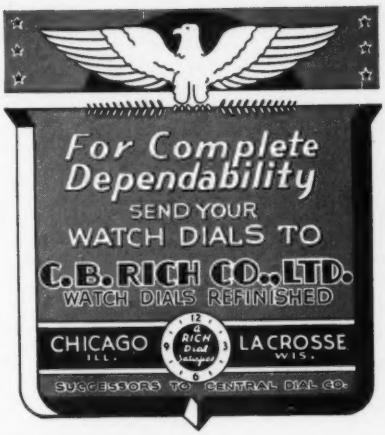

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March 27, 1944

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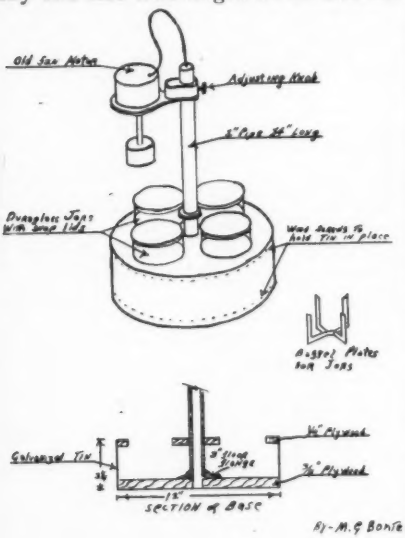
I am enclosing a sketch of a watch cleaning machine that I built when I found that I was unable to buy one because of war priorities. It has worked out well enough so that I would like to pass the idea along to any one else who might be interested.



The base is built up of two pieces of plywood held apart by a strip of galvanized tin. The upper piece of plywood has holes cut in it so that the jars will set down on the lower piece. The jars are Duraglass jars that came from our grocery with fruit in them. I removed the rubber sealing ring from the lids and painted them black to match the rest of the machine and also to keep them from rusting.

The center post is a piece of 1 inch pipe held to the base by a 3 inch floor flange. In buying the floor flange I had to try two or three before I found one that would hold the pipe perfectly upright.

The bracket that the motor is mounted on is a piece of scrap casting and a ¼ inch plate of aluminum held together by flat head machine screws. I had a machinest bore the 1 inch hole for me.

The motor is an old electric fan motor and the basket is one that I bought from a material house some while back. However, a very satisfactory basket can be made.

To control the speed of the motor I simply adapted the connection so that it would plug into my rheostat connection for my lathe motor thereby giving speed control with my pedal rheostat.

The baffel plates are made of noncorrosive steel so that the cleaning solutions will not attach them.

There is an adjustable collar on the center post so that the motor bracket can rest on it and not let the basket hit the bottom of the jars.

If anyone is interested in building a machine like this I would be glad to furnish them with any details that are lacking.

I have used this machine in my own work for quite some time and find it entirely satisfactory.

Yours truly,
MYRON BOHLEN

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Blueprints and construction information in detail now available to those interested in making wooden clocks. Complete details and two large blueprints postpaid for $2.50.

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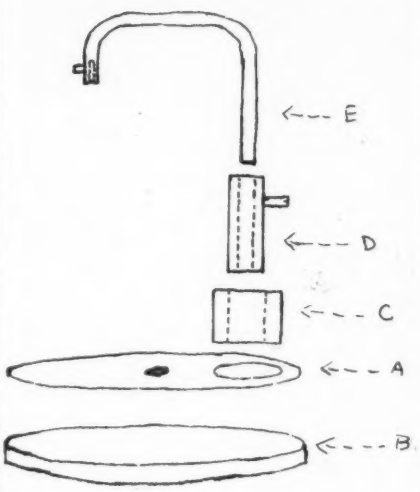
GENUINE AMERICAN AND SWISS WATCH MATERIALS

Hairspring Vibrating Tool

By J. L. Desjardins
Manchester, N. H.

The following sketch or diagram will probably be found as being very practical for Watchmakers at the bench today, for a time saver, as it is almost impossible to obtain hairsprings, and to have them vibrated to the balance. It can be easily made by anyone in the repair shop, the time you will spend to make it will really be worth while, and will save a lot of time in vibrating hairsprings. It is most practical in vibrating different beats, as for example: let us say you have a No. 106 or 520 Gruen which has 20160 beats, or a No. 455 or 469 Gruen which has 19800 beats, you go through your watch board and select a watch having the same numbers as that which you are about to vibrate a hairspring on, you take the balance out of the watch taken from board (which is suppose to be accurate) you use this balance as the master balance in this way you can be sure that the vibration will be correct without having to count the teeth in the train. You may fasten this balance by the hairspring stud, described in the following diagram. The process and beat

Hairspring Vibrating Tool



counting is the same as the ordinary vibrating tool, on 18000 beats you may use **any accurate** balance, a balance the same size as that which you are about to vibrate a hairspring on is recommended, as it is easy to count the beats.

Description of diagram, and the instructions of how to make it, are as

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follows:—

(A)—An old 18 size Dial, removed second bit.

(B)—An inexpensive watch, back case cover.

(C)—Brass tubing the size to fit the second bit hole in the Dial about 6 M. M. in length, hole 5 M. M.

(D)—Brass tubing, 5 M. M. in diameter to fit hole in tubing (C) 15 M. M. in length. Drill a hole at about 3 M. M. from one end (top) and fit a screw. Cement A-B-C & D together with sealing wax.

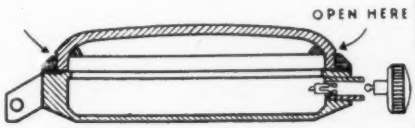
(E)—Brass wire of 3 M. M. to fit hole tubing (D) bend in a —U— shape 20 M. M., cut off 11 M. M. from one end, drill a hole of 1 M. M. at the shortest end, lengthwise. Drill another hole across top, and fit a screw. The —U— piece may be lifted to any height to suit your balance.

Spare TIME? What's that?

Lewis Propst of St. Louis stares blankly at any one who mentions SPARE TIME.

He is principal of a small elementary school, coaches softball and volleyball, works eight HOURS a night at a cotton company plant, raises chickens, sells insurance—and is an amateur mechanic and carpenter.

Instructions For Opening and Closing The Wyler Waterproof Watch



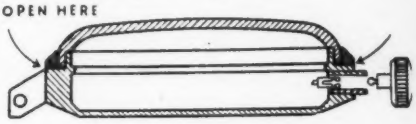
"ECO" MODEL

In the WYLER "ECO" MODEL, the bezel is part of the case and cannot be removed.

TO OPEN:

1. Press an ordinary watch opener between the bezel and the glass.
2. Lift out the glass.
3. Pull out the crown with pliers.
4. Turn over the case and the movement will come out easily.

When closing the watch, be sure to press the glass in tightly.

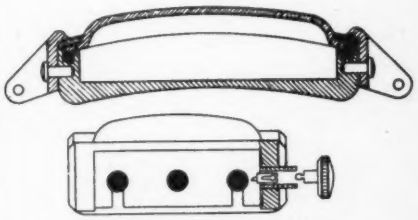


"EXTRA" MODEL

The WYLER "EXTRA MODEL has an independent bezel—it is not part of the case.

TO OPEN:

1. Open the bezel with an ordinary watch opener or knife.
2. Remove the glass and the inside bezel.
3. Pull out the crown with pliers.
4. Turn over the case and the movement will come out easily.



"RECTANGULAR" MODEL

When closing the watch, be sure the bezel is closed all around.

TO OPEN:

1. Remove the middle pin on each side of the case with the aid of a knife.
2. Withdraw both lugs.
3. Pull out the crown with pliers.
4. Remove the glass.
5. Turn over the case and the movement will come out easily.

When closing the watch, (1) replace the movement; (2) adjust the glass and bezel properly; (3) fix the first lug; (4) replace the second lug (press hard to get it in position) and replace pin.

The Functions of The Double Chronograph

From Swiss Journal Horological

This tpe of chronograph, actually greatly in use as a wrist-watch, allows the functions described under A and B to be easily realized

A. Setting the hand of the chronograph in motion (pusher I Stopping the hand (pusher I).

Setting the hand back to zero (pusher 10).

These are the usual functions of the chronograph having a single pusher. The double chronograph enables the additional functions to take place.

B. Setting the hand of the chronograph in motion (pusher I) Stopping the hand (pusher I).

Starting the hand again without returning to zero (pusher 1)

Starting the hand again without returning to zero (pusher I) etc.

Thus a series of measurements of time can be obtained, the last observations giving the grand total. After the last observation, when the hand is stopped, there is the final function: Setting the hand back to zero (pusher 10).

These different functions, fig. 1, are obtained by means of the two pushers, No. 1 for setting the hand in motion and stopping it as well, and No. 10 for setting the hand back to zero. Pusher No. 10 can be used only when the hand is in motion.

Figure No. 1

1. Pusher of the chronograph.
2. The stopping pivoted detent
3. Spring of the above.
4. The column wheel.
5. The jumper of the column wheel.
6. Chronograph pivoted detent.
7. Spring of the above.
8. Eccentric steady pin.
9. Eccentric stud.
10. Pusher for setting back to zero.
11. Push-piece for setting back to zero.
12. Hammer.
13. Hammer-spring.
14. Brakes.
15. Brake-spring.
16. Minute-recorder pivoted detent.
17. Spring for the above.
18. Eccentric stud-piece.
19. Wheel over the seconds-wheel.
20. Intermediary wheel.
21. Centre wheel.
22. Intermediary recorder wheel.
23. Minute-recorder wheel.
24. Minute-recorder heart-piece.
25. Centre heart-wheel.
26. Finger centre wheel.
27. Minute-recorder jumper.

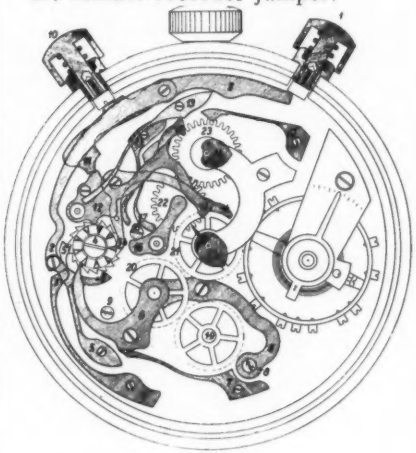


Figure 1

Figure No. 1 represents the different parts when the movement is at rest, the hands being at zero on the dial. In this position, the pivoted detent No. 6 rests one of its beaks against a column of the wheel 4, while the beak of the brake No. 14, entering an empty space of this same wheel, applies the brakes by means of its opposite arm againsst centre-wheel No. 21 of the chronograph. The various organs which constitute the complete mechanism of the chronograph, with the minute-recorder, are indicated by the hatched lines. In our other illustrations, the hatched lines will represent only the parts ensuring the described functions.

Figure No. 2 Setting the chronograph-hand in motion (intermediary position)

Having pressed on pusher 1, the pivoted detent No. 2 turns until its click brings the point of the ratchet

Figure 2

of the column wheel above the point of the jumper-spring 5.

It is to be noted that this position cannot be practically realized, by acting with the hand, on pusher 1. It is however very useful for verifying the position of the different parts in this state of unstable intermediary equilibrium. In view of this, the column-wheel is made to rotate slowly, by means of a brass stem, whose extremity has two breaks which can be introduced in the manner of a screwdriver, in the empty spaces opposite the columns.

In this position, brake No. 14 has already lifted up and freed the centre wheel 21, but the beak of the chronograph pivoted detent No. 6 has not yet fallen in one of the empty spaces of the column wheel.

Figure No. 3 Setting the hand In Motion.

The jumper No. 5 causes the column wheel to rotate suddenly, at the instant its point slides on the tooth of the ratchet. The beakk of the chronograph pivoted detent 6 falls into a space of the column wheel 4 and intermediary wheel 20 pitches into the centre wheel 21. The pivoted detent No. 6 pivots on the eccentric stud 8, permitting the regulation of the penetration of the teeth of the wheels 20 and 19, the latter fixed on the movement's seconds-wheel. The eccentric stud 9 regulates the penetration of the teeth of the wheels 20 and 21.

Brake No. 14 has been lifted up entirely and its beak rests against one of the columns.

In this position, that is as long as the chronograph hand works, the beak of the hammer No. 12 facing a column of wheel 4 cannot be set in motion by the push-piece No. 11. Consequently pusher 10 is also immobilized.

Figure No. 4 The stopping of the hand of the chronograph (intermediary position)

A second pressure on pusher 1 brings the point of the tooth of the jumper 5 on the point of the following tooth of the ratchet. Brake 14 has already been lifted and frees centre wheel 21, but the chronograph pivoted detent 6 has not yet been lifted; the intermediary wheel 20 continues keeping wheel 21 in motion.

Figure 3

By pressing more heavily on pusher 1, the hand is stopped and the various parts are again in the position indicated in figure No. 1. The pivoted detent 6 has been suddenly lifted up, as well as the brake 14.

In this part of the functioning, which is very rapid, inasmuch as it is the jumper which causes it to hap-

Figure 4

pen suddenly, one can wonder whether brake 14 should free wheel 21 before or after the distancing of the intermediary wheel. Let us insist on the fact that this expression of before and after should represent only a very short time, about a few hundredths of a second. We have noticed that the opinion of experts is divided on this point.

Let us examine this function:

Pivoted detent 6 pivots on the steady pin 8. This pivoting movement causes a slight rotation of the intermediary wheel 20 over the wheel 19, and can be interpreted as a shock on wheel 21, especially when the gear of wheels 20 and 21 takes place without any play. It would therefore be advisable to have the brake act rather before the distancing of the pivoted detent. There is another risk which consists in the temporary immobilization of the wheel-train. The result would be a checking of or a shock on wheel 19 and from there to the escapement wheel.

We believe that this question can be solved by stating that the functioning of the Drake and the pivoted detent can take place simultaneously. We have raised this case of a delicate function on purpose in order to show how little one can count on the indications of the chronograph hands of simplified and very inexpensive mechanism. All the functions of a chronograph are very delicate; they require very exact precision in the adjustments, cutting, and a most careful final checking.

The same remark could be made for other functions, notably the contact of the intermediary wheel 20 with wheel 21. One can often notice, in cheap watches that the chronograph hand makes a jump of 2/5 and sometimes 3/5 of a second at the very start. This defect can and should be corrected in a well-made watch.

One jump of the chronograph hand corresponds to one alternance of the balance of 1/5 or 0.20 of a second. The reckoning indicates that the seconds hand takes this jump in 0.007 seconds, that is about 0.01 seconds, the hand not moving, for about 0.19 second. In other words, during one alternance, the time of rest of the seconds hand, that is of the wheel, is about 20 times greater than the time of dropping. There are therefore 20 chances against one, while setting in motion the various operations of the chronograph, of coming across the time of rest rather than that of dropping. This would explain why it is sometimes difficult to try to repeat a defect only occasionally noticed.

In order to analyze the various movements of the different parts of the chronograph, an appreciation by means of simple visual observation, is absolutely insufficient. Only an analysis by means of motion pictures or stroboscopie method could give exact time indications.

Figure No. 5 Setting the hand back to zero.

This function, Figure No. 5, is obtained by the pusher 10 which acts on hammer 12 by means of the push-piece 11. The beak of hammer 12 finds itself facing a space of column-wheel 4, and can penetrate within. By pressing on pusher 10, hammer 12 pivots and acts on the pin of brake 14 which is therefore suddenly removed from the column wheel 14 and

center wheel 21. The hammers fall on the heart-pieces 21 of the centre wheel and 24 of the minute recorder, to bring back the hands of the chronograph and the minute-recorder to the zero of their respective dials. It is to be noticed that the return to zero of the minute-recorder wheel 23 is not to be actioned entirely by the hammer, but by the action of the jumper 27 which acts on the teeth of the wheel.

It is the jumper and not the hammer which should end the return to zero, in order to obtain a clean stopping of the hands.

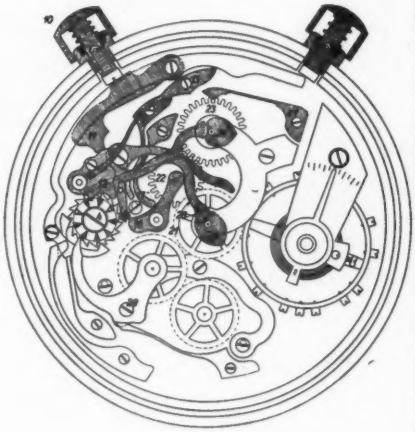


Figure 5

Functions of the Minute-recorder.

The recorder is of the so-called "half -instantaneous" type. On the centre wheel 21, figure No. 4, is attached a finger 26 which, at every revolution (every minute) sets in motion a tooth of the intermediary wheel 22. This movement is transmitted to the minute-recorder wheel, subjected to the action of the jumper-spring 27, which causes the jumping of the wheels. Figure No. 4 shows the instant where the point of the tooth of the jumper finds itself on the point of the tooth of the recorder. At the 60th second, the wheel takes a jump the equivalent of a tooth and the minute-recording hand marks the passing minute. For as long as pusher 10 is not brought into action, the minute-recorder pivoted detent, which bears the intermediary wheel 22 rests on the eccentric stud-piece 18, under the influence of the spring 17. The eccentric stud-piece enables the position of the wheel 22 to be regulated in relation to the finger 26, which causes it to jump.

The setting back to zero of the minute - recording hand has been done, figure No. 5, at the instant of the fall of the hammer 12 which acts as very clearly represented by the position of the various parts; at the same time the hammer falls, it causes the minute-recorder pivoted detent 16 to pivot by means of one of its arms and removes wheel 22 from the finger. As already stated, it is the jumper 27 which must end the function of the return to zero.

This type of double chronograph presents the advantage of enabling the addition of the observations made to be made on the dial.

This chronograph is often fitted with an hour-recorder, whose mechanism placed below the dial presents no special point as far as functioning is concerned.

The hour-recorder is governed by a wheel-train in relation with the barrel It included an intermediary wheel which links the recorder to the barrel, at the time of setting in action. This function is ensured by means of pivoted detent by screw 28. This screw goes right across the movement in order to reach a jumper situated on the side of the dial.

The setting back to zero is obtained by another push-piece, which is not indicated, placed under push-piece 11, on the side of the dial. This push-piece acts on the hammer for the return to zero of the recorder, whose functions are about the same as those of the chronograph-hammer.

The hour-recorder is greatly appreciated for it allows lengthy observations to be made (12)hours, whilst the minute-recorder is generally limited to observations of 30 or 45 minutes.

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Some Notes On Isochronism of Semi-Vibrations

By Rev. Francis Bimanski

Mr. Gladstone used to keep open before him three separate volumes on three distinct subjects. When he found attention beginning to flag in the reading of one, he immediately turned to another. He knew well that change brings rest to the mind and keeps it from growing wearied. In other words, a change of thought is our best recreation and relaxation.

I learned the lesson from the great English statesman. If my nerves demand relaxation from hospital work, I turn my mind to the most fascinating occupation, Horology. In those hours of leisure, I like to take some notes in order to test the accuracy of my knowledge. Writing makes a man exact, says Bacon. These notes have no claim to scientific precision. They are simply a private recreation, the fruit of quiet observation plus a little thinking.

The learned word, isochronism, seems to be bewildering and yet it simply means that the vibrations, small and great, occupy the same period of time. "At all time, during every hour of the day," says the Swiss. Our forefathers dressed the thought in more simple words. They spoke of regulating a watch. The French and Swiss (Grossman, Donat, DeFossez) wrote profound books on **reglage.** Schultz followed this example. Many attempts were made The fusee had to keep a constant arc. Some were looking for a constant force in the mainspring. Hence, Iso-force. But these views are neglected now-a-days.

There is a fundamental law, apparently rather strange, but founded on facts. This law was discovered by LeRoy ((1717-1785). He says: A hair-spring of a certain length has all the vibrations, large or small, isochronous in all the degrees. (30, 90, 180). Further experiences revealed that the duration of vibrations is dependent on the amplitude in clocks but not in watches (see Grossman, Vol.II, p. 86). Professor Jacquet of Geneva is more accurate and explicit. He says: The vibrations in watches are independent of amplitude, latitude, and altiude. The italic words are added: theoretically speaking. He means, I suppose, as far as we can determine; thus leaving the doors open for further research work. To be brief, isochronism means: same time for all the vibrations.

Those facts are applied to practice. First of all the number of desired vibrations is ascertained. This number will depend on the si ze and mass of the balance and on the length, elasticity and dimensions of the hairspring. When such a spring is put in the watch and nothing will disturb its action, isochronism is established The secret of the adjuster is just to know what might preserve or disturb it. These disturbances may be detected in several parts.

It is well understood that we deal with a first class watch in a first class condition. Cheap watches don't belong to the realm of isochronism.

Train: Too much play in the jewel would disturb the gentle rolling of the addenda and affect the regular march of the watch.

Escape: The train transmits to the steel escape the energy received from the mainspring. This spring must deliver a constant and uniform force. For this purpose only highly resilient and elastic mainsprings are chosen. At the same time it has to harmonize with the force of the hairspring. In fact too strong or too weak a mainspring in the course of time would influence the action of hairspring, and destroy the uniform action. Experience gained in the factory determines the strength.

Pallets It is understood that the angle of the escape tooth must fit the an gle of the locking face. Furthermore a too deep locking or slide and even draw produces a greater

recoil which in turn will cause a release of greater energy. Unequal locking will naturally cause anisochronism: one arm is longer with a deeper angle. Is not a stronger force required to dislodge it, and in the release does it not affect the escape more strongly and consequently the vibrations?

Fork: In its travel of 10 degrees the fork derives its power from the pallets, whose action may vary as noted before.

Balance: A well poised balance insures the center of gravity in the center of the staff. Of late auto and locomotive manufacturers speak of dynamic poise. This phenomenon, not well understood, will have a doubtful application in small mechanics. A dynamic force might be guessed in PU position when too many balance screws would be clustered in one place. This might explain a difference between static and dynamic poise. It is well to remember that with good vibrations heavy on top means a gain and heavy on lower sides denotes a loss.

Hairspring: The soul of the watch! It must be adapted to the balance. A heavy balance will put a too strong strain on a weaker hairspring. The Breguet is used to avoid any side bulging during the expension and to center all the coils in the center of the staff. Any defect in the curve will place the center of gravity above or below the center of gravity. Let us watch the construction of the balance spring. It seems there is more strain and resistance in the inner and shorter coils, while the outer, longer coils are more elastic and develop more easily. Again, the inner coils have a shorter journey to travel, but the action is stronger, while the outer coils have a longer way to go and produce a weaker action. When the hairspring is attached to the balance and set into motion, the outer coils contracting at first extend their influence until at length they reach the inner coils; the force required is in the increase. Then again the inner coils expanding drag coil after coil slowly at first, fast at the end; the power required is in the decrease. It seems that in the expansion there is greater freedom, and that the arcs have a chance for greater freedom and have a tendency to be greater. The duty of the Breguet is to correct this tendency. Of late we read about the standing still of the 8th coil while the 7th and 9th are moving. The reason seems to be simple: At that time the hairspring is at the highest tension and the balance at the extreme point, just at rest before retracing its path. The 9th and following coils are just rippling waves affected by the other coils.

Pinning Point: The pinning point is generally on the arm of the balance. Attachment above the horizontal PU gives a fast, but when below, a a slow. The Breguet does not allow much change except at the pinning point. (A rather delicate operation reserved to factory experts.) Those points will help in the process of adjusting.

Regulating Pins: The hairspring must fit well two straight pins otherwise irregular action of the spring can be expected. This will happen when the regulator in its motions will displace the center of gravity.

Balance and Hairspring: It is presupposed that hairspring and balance are in perfect truth and poise and harmonize. Good vibrations ought never to be behind the center line; they are allowed only beyond the center line. Some would allow only a 2'3" (I suppose when a watch is run down.) A more liberal view is preferable. As a consequence the statement that adjusters never mind the amplitude of the vibrations needs explanation.

Temperature: Heat and cold affect the metals. Heat closes the curve, shortens the diameter, and hastens the balance; cold stretches out the arms, expands the diameter and slows up the action. The opposite effects would be expected. But we have

to deal with two metals fused together and with different expansion and volume: e. g., cold shortens the brass more than the steel, hence the outward drawing. Moreover, since at the same time heat weakens the hairspring, a compensation is necessary and is obtained by moving one or more screws towards or away from the cut. Nickel steel promised to solve the temperature problems. But improvement is still needed. Indeed all the types of Elinvar hairspring, or compensating springs, have a lower elasticity and in PU are liable to sagging and instability and will not admit the terminal alterations. The Invar Balance, called integral, still shows a residual temperature error. No wonder! This complex metal is produced in small quantities only. And each ingot shows individual qualities. Navarex seems to displace Elinvar, but unluckily its composition is still too complicated. The hope for greater perfection will be found in greater simplicity.

Friction: are to be considered since the tests are made not only in the horizontal but in the vertical position.

Magnetism: It is known that magnetism produces any irratic motion. The solenoid is a strong magnetizer and demagnetizer. It magnetizes if the watch is kept in the opening while the current is cut off; but demagnetizes if the watch is removed while the current is on.

N. B. Undue praise is given machines that will detect all the defects. A famous diognastician of the greatest hospital in the world used to say to the young doctors: "Now-a-days you invent machines and gadgets for everything and you don't use your eyes and ears and the delicate tips of your fingers, and what is more, you don't even know how to read the records of the machines correctly." The lesson might be applied to us.

Adjusting: preceeds isochronism operations and is rather an elastic because relative word. We adjust to two or five positions to the mean or three temperatures, we adjust to the minute or to the second. A fine adjustment is for a high grade watch, a common adjustment for a common watch. A good watch ought not to vary more than 30 seconds a week. Deck chronometers require the highest accuracy. The nautical Almanac of 1933 notes for the first time 0.001 of a second instead of 0.01. The Ball watch adjusted has an allowance of two seconds in two weeks. This is the record of the best watches tested in KEW and GENEVA (0.07 second a day). A good sign of limitation of adjustment is when the variations move in a circle to and fro. They say that a little touch now and then is necessary, because metals have the tendency to readjust their molecules and to return to their original state. True, but this is true too, that the more we leave the watch alone, the better it is, because the watch adjusts itself to given circumstances.

SOME OF THE LARGEST U. S. GOVERNMENT ARSENALS

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Corrections: (in the hairspring): when and where? Corrections are called for when the quickening of small arcs or slowing down of big arcs are desired. This is done while stiffening the radial section ((as in Elgin overcoil) or closing the overcoil.—How much? The expert often does not know, but gently tries.

Complications are numberless: a.) in the sum of minute faults and errors that hinder perfect co-ordination and co-operation, for instance: minute defects in the preparation of the material; lack of proportion in tiny parts; minute errors in the plans and execution. (b.) In the sum of forces that refuse to co-operate well; the radial centripetal drags towards the center, the centrifugal pulls away from the axis, the inertia offers a strong resistance to any change, the power of gravity retards, the epileptical power with continually changing radius exercises its influence. All these factors act at the same time, one modifying the other. Who would ever try to graph the resulting power? (c.) In the sum of exterior agents: heat expands, cold contracts, the density of the air retards, the power of magnetism creates erratic performances. Add to all this the sudden shocks, accidents and even all the strange motions and movements of the individual that will create changes almost imperceptible to the eye.—Some might object stating that we deal with infinitesimal quantities which could easily be neglected. But we forget that those small quantities are summed up and are very tangible. For instance, the variation of one second a day represents only the 86,400th part, and yet it amounts to half a minute a month.

Conclusion: Isochronism is the harmonious working of the hairspring with the balance and the perfect coordination and co-operation of all the parts of the movement. Or, as Chamberlain puts it in a popular way, short swings and long swings and intermediate ones taking place exactly in the same period of time. The foundation is this great principle: same time for all the vibrations, small and great. But the way to perfect isochronism is hard and rough. Long experience and longer observation are the best guides. Especially since no watch has ever had its perfect counterpart. Each one has its own peculiarities and individualities. Yet perseverance conquers all difficulties. In working, the axiom of the master is: head first, hand afterwards. Unless the tinker is preferred to the thinker. No wonder that some masters of the trade maintain that isochronism is established when the watch is in first class condition.

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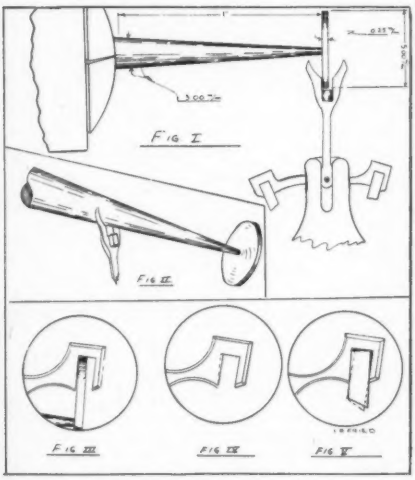
228 16th Street Denver 2, Colo.

Grinding The Pallet and Fork

Submitted by I. Liemer
Drawings by Henry B. Fried

The following article has to deal with the correct and efficient procedures to be followed in adjustments to the pallet and fork in increasing the width of the fork slot to accommodate a thicker roller jewel or to change the angle of draw in the pallets or to alter the fork horns.



To some who have tried altering the pallets with a file with the usual disastrous results, this article should be of some help.

Illustration No. 1 shows the LAP mounted in the lathe. The LAP is merely an agent for the abrasive which is to GRIND the parts to be altered. This lap should be made of a material soft enough to have the abrasive imbed itself into the lap and at the same time be sturdy enough to withstand the pressure applied against it during the grinding operations. Iron or soft steel is recommended for this purpose. The measurements for this lap are given in the drawings. The lap when finished, should be smooth without grooves or pits.

In preparing the lap for the grinding compound, take a fine no. 4 file

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and run a series of soft steady lines along the taper towards the disc. Do the same thing to the faces of the disc as well as the flat edges or periphery of the disc. The purpose of these light lines is to provise microscopic grooves for the abrasive particles to rest into or imbed themselves, thus in effect to make a 'charged lap' out of the taper and disc.

The abrasive, either fine oilstone powder, lavigated aluminum or even diamantine, made into a fine paste with the mixture of oil, is applied to the lap with a clean spatula made of flatened pegwood.

IN GRINDING, the pallet fork is held in the pallet holder and when grinding the fork slot, the fork slot is held against the edge of the disc and moved slowly in and out while the disc is spun at a moderate speed. CAUTION must be exercised in all such operations as the grinding takes place faster than is suspected and overgrinding is often the result with 'first trys'.

To grind the fork horns, an operation resorted to in order to change the curves of the horns to aligne the safety action of the horns to a new roller diameter or even to shorten the length of the fork itself, the pallet fork is held in the same holder. After the part of the taper whose diameter most closely measures the curvature desired is obtained, the fork is held in a slightly slanted position and while the taper is being turned at a moderate speed, the fork is moved back and forth along the taper until the desired shape is obtained. Slating the fork along the taper allows the fork horns to obtain the ovalized shape that both arcs seem to form. (Illustration No. 2).

In changing the "draw" of the pallet jewels, the disc lap is again used as shown in the circle view No. 3, this will grind the slot to appear as the dotted line indicates in figure No. 4. Figure No. 5, shows the jewel in its new position with the dotted lines showing the original view.

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Revised Edition Practical Benchwork For Horologists

Practical Benchwork For Horologists by Louis Levin and Samuel Levin, now in its third edition, has been completely revised and enlarged. A considerable volume of material hitherto unpublished has been added. The 1944 edition of the book contains 378 pages and 475 photographs and drawings.

The first section, Tools and Their Uses, describes many practical setups which can be made on the watchmakers' lathe and its attachments. This chapter should be one of interest to the instrument maker and machinest as well as the watchmaker.

The section, Repair Problem, is acing. Such everyday problems as maktually a full course in watch repairing a barrel hook, tightening a cannon pinion, removing an old balance staff, taking apart and assembling complicated watch, making stems and detents, etc., are thoroughly presented. At the conclusion of this section there is a chapter on oiling a watch, showing microphotographs of the position and size of an oil bubble which is held by capillary attraction between the hold and jewel and endstone.

Position adjusting is presented from the practical as well as the theoretical standpoint. Combined with the section on timing machines the subject is reduced to the simplest terms.

The section on jewel bearings is the first authentic information ever published on the subject. This was made possible because the authors have been engaged in the manufacfacture of jewel bearings for the past several years.

The price of the book is $5.00 postpaid and may be obtained from the book department of the American Horologist.

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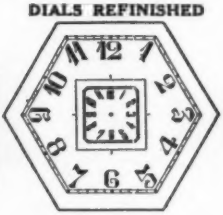

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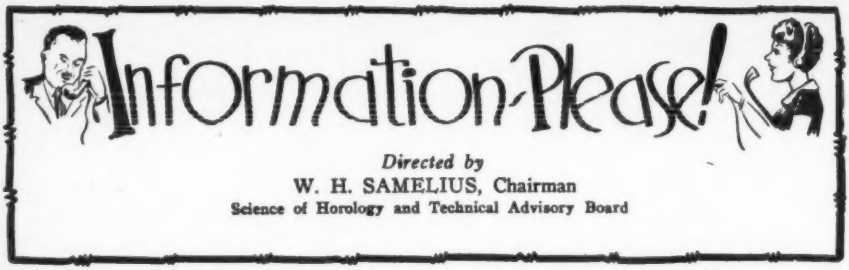

Directed by
W. H. SAMELIUS, Chairman
Science of Horology and Technical Advisory Board

LAL: What kind of metal is used in balance wheels that weather or temperatures does not affect?

Answer: Your question as to what kind of metal is used in our monometalic balances such as found in our modern watches, would say that the composition and formula are more or less held secret by the different manufacturers and the writer is sorry that I cannot give you their exact formulas.

Some are made of nickel and iron, some of copper and beryllium and several other combinations. The claims for the various balances are that the metal is non-magnetic, not affected by rust and the coefficient of expansion is practically nil, making the unit desirable for close rating thruout the average of temperature that a watch is exposed to.

RWA: Please tell us something how the ordinary flat spring is made, coiled and tempered.

Answer: Hairsprings are made of special alloyed steel wire. The round wire is rolled flat to approximate size or thickness. This wire is then drawn thru diamond dies until it is of exact thickness required. After the wire has been reduced to the exact thickness, it is cut into short lengths. These lengths are coiled in a box, the inside diameter of the box being the required diameter for hairspring. When coiling the spring in the box, there is a small arbor in center, having three slits in same. There are also three slits thru the edge of the box. The three wires first strung thru the slit in the box and then into the slit of arbor. This arbor is then turned, winding the three springs about the arbor until the box is entirely filled. A cover is then snapped over the box, the box and hairspring are placed in the furnace, brought to a red heat and quenched in oil.

After hardening the springs, they are removed from the box, cleaned, laid on a hot tempering plate when they are drawn to a blue color, showing their temper when they are ready for use. The number of hairsprings wrapped in the box determines the space between coils. When there are three springs made at one time, the space between the coils will be equal to two thicknesses of the spring. Sometimes four and five coils are made simultaneously. This would allow more space between coils and are commonly found in small watches. One pound of steel wire when drawn for hairsprings will be from eight to fifteen miles long, depending on the size and thickness of spring. It is rumored that one pound of steel costs approximately $10, but when the pound of steel has been processed into hairsprings, it's value has enhanced to approximately $75,000.00 You can readily see the amount of labor involved in producing a hairspring.

Recently, a new method for hardening springs has been used. This method is to harden the spring in a vacuum furnace. By this process no oxidization occurs, the spring remaining white. This operation eliminates the cleaning process.

If ever you have an appointment with General Giraud, get there on TIME! An apostle of punctuality, his pet dislike is tardiness and he can't stand people being even a MINUTE

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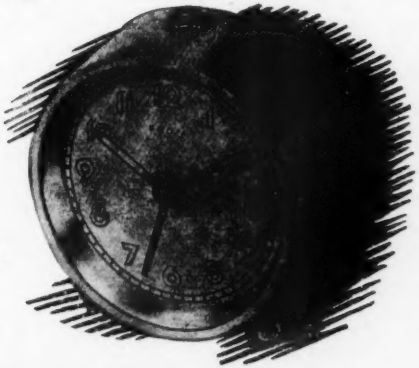

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AERONAUTICAL INSTRUMENT SERVICE

Aircraft Instruments

EDITOR'S NOTE—Aeronautical Instrument Service is a subject untouched by publications in the Horological field, or in fact by any publication. In September, 1938, THE AMERICAN HOROLOGIST inaugurated such an educational service via prepared illustrated lectures to be used by U. H. A. A. organizations for the purpose of broadening our members' scope of knowledge in this field, which offered additional remuneration to those far-sighted enough to avail themselves of such knowledge.

Article No. 53

Pioneer - Compass

Magnetic Type 1066

Pioneer Type 1066 Compass is an improved model of the type 818 series, an ideal pilots' steering Compass. This panel mounting instrument is designed primarily to meet airline requirements. It is a small Compass with performance characteristics previously obtained only in much larger types.

Distinctive Features

Stability in Flight

In flight, the Compass is exceptionally steady. The medium short period card, after a displacement, returns to the proper heading directly with little oscillation or overswing. The performance is ideal for large aircraft and, on account of its unusual stability, the Type 1066 is suitable for small highly maneuverable planes as well.

Card Construction

The card is of the float type, mounted on a spring supported pivot which sets on a jewel cup. This construction offers protection from vibration and shock, while contributing additional stability to the card. The card is marked in distinct one degree divisions with large numerals at thirty degree intervals. Numerals and every five degree graduation are radium painted.

Bowl Construction

The smooth rounded inner surface of the large cast aluminum bowl and the use of a low viscosity damping liquid, eliminate the effect of movements of the airplane on the compass card. A large metal diaphragm provides for expansion and contraction with temperature in flight and transmits to the liquid the change in pressure with altitude.

Glass Window

Instead of the customary curved lens, a clear flat glass is used. This arrangement provides perfect vision of the card and prevents reflected highlights.

Lubber Line

A fine lubber line set close to the card reduces paralax and enables the pilot to read the compass accurately without changing his position.

Individual Lighting

A small 12-volt lamp is mounted in the drawer on the top part of the compass just in front of the Universal Compensator. Light projected down through a glass window is concentrated on the lubber line and front of the card without glare or diffusion.

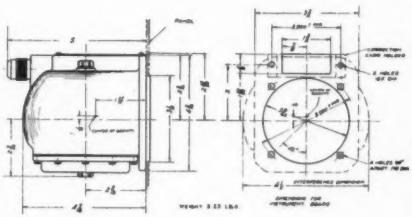
Pioneer Universal Compensator

The new Pioneer Universal Compensator, an integral part of the type 1066 Compass, is the most satisfactory system of compass compensation yet developed. In this device, the compensating magnets turn in a horizontal plane which varies the horizontal magnetic field only. The vertical field remains constant which insures perfect balance of the card for all degrees of compensation.

Location

Most satisfactory results are obtained when the Compass is located on the panel where it is least disturbed by influences of electrically operated instruments, wiring and steel members of the airplane. After selecting a location, which should be near the Flight Instrument Group if possible, the Compass should be checked on all headings. Original deviations should not exceed 30 degrees.

PIONEER COMPASS, MAGNETIC TYPE 1066



Installation

To install the Compass in a panel, cut two holes, one 3 9/64" diameter and the other 5/8" x 1 3/4" as shown above. Also drill mounting screw holes for the Compass and the Correction Card Holder. Mount the Compass from the rear of the panel using the four screws provided.

After compensation, the lamp drawer is snapped into place. The Correction Card Holder, card and window are mounted over the opening. To replace the light bulb at any time, simply remove the Correction Card Assembly and the lamp drawer.

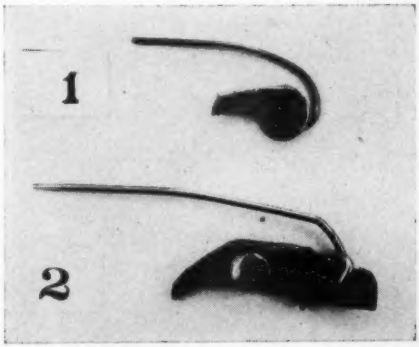
Compensation

To compensate, remove the Correction Card Assembly and the lamp drawer; this will expose the compensating screws.

Head the airplane to magnetic north, using a Compass Rose or Pelorus. (Refer to Pioneer Test Equipment Catalogue for description and operation of the Pelorus.) Note the reading of the Compass and eliminate the error by turning the screw marked N.S. Now head the ship East and remove error by turning screw marked E.W. Head the ship South and note the error. Only ½ of this error should be removed by turning the N.S. screw. Now head the ship West and remove the half error by turning the E.W. screw. The Compass is now compensated and the ship should be swung on successive heading at 30-degree intervals and the readings recorded on the Correction Card.

Reason For Legislation

Our photo shows: No. 2, a botch clock click with click-spring made of a paper clip, as compared with No. 1, factory click that should have gone on the job. Sent in By: Gus Griffith, 58 Arcade, Nashville, Tenn.



Wisconsin Watchmakers Association

The Wisconsin Watchmakers Association will hold its annual meeting of May 14th, 1944 at the Hotel Wisconsin, Milwaukee All watchmakers and jewelers throughout the State are invited and urged to attend.

Time Fixer

The name is Dannenhirsch. There was a TIME in his early days of WATCH repairing when he suggested dropping the Dannen, and for convenience, become simply Mr. Hirsch.

But his mother would not hear of it, "We have done nothing to cause us to change our name," she said. And Dannenhirsch it remained.

For forty-one years he has been fixing the TIME pieces of Seattle folk. Besides being a WATCH man, Mr. Dannenhirsch is a philosopher.

"Does it make a philosopher of a man to be forever working with TIME? "I asked him.

"Perhaps," he conceded dubiously, "At least it teaches him the value of little things."

In 1897 an uncle wrote to his mother, "America needs WATCH-makers. It is a fine trade. You have a son old enough to apprentice. Why not send him here to study WATCH and Clock repairing. It is a fine new world, also."

The letter arrived at the Dannenhirsch home in the north of Russia, and Mrs. Dannenhirsch reviewed the situation. She had been left a widow. And she was lonely for her parents, already in America. So, with her family, she set sail for the new country.

The letter had been sent from San Francisco, but by the time she arrived in America the uncle had gone to Seattle, to fill a vacancy left by a Rabbi in Seattle.

Dannenhirsch learned the trade from a cousin, although he had an uncle who was also a WATCH repair man.

"Have you ever repaired CLOCKS or WATCHES of famous persons?"

Mr. Dannenhirsch is sober of demeanor, having seen much in his life to give him a sober thought. But there is a twinkle in his eye. He shrugged away the question.

"How am I knowing?" he asked, "how famous my customer? I ask only, 'you want me to fix it?' Who knows whether a man is famous because he has a WATCH?

"It is not the WATCH he has, but how he spends the TIME of it that makes him famous, yes?"

"And do you like Seattle," I asked him.

It was almost a smile that time.

"In 1903 I am coming to Seattle," he answered. And one day I make a trip to Bremerton, across the Sound. That is the only time in forty-one years I have been away from this place. Do I like it?"

"But do you not have a desire to see more of this country? I gasped.

"The desire, yes. But always more WATCHES come in to be fixed. Someday, too, I would like to go back to Russia, but only for a visit. Not to live there."

"Does working with WATCHES make a man TIME conscious? So he is always on TIME for appointments?"

Mr. Dannenhirsch shook his head. "The WATCH cannot matter. A man is what he is no matter how many WATCHES he may have or work with."

"Though people are more TIME conscious in war of course."

Mr. Dannenhirsch estimates that 5% of the people have WATCHES

or CLOCKS that need repairing. In normal times the estimate will be much higher than this.

Increase of American made WATCHES has marked the years of his WATCH repairing. In the four and one-half years of his apprenticing, he worked on only one American made WATCH. That belonged to an old sea captain who put into port. The rest of the WATCHES were of Swiss make.

"War," Dannenhirsch shook his head, "as long as there is war, we will need WATCHES. As long as there are WATCHES, there will be wars. War and Time! TIME and war!"

"Do men who carry WATCHES hurry more than others?"

"My old mother has put it this way," said he, "Go slow and you reach there faster." But the watch, never set it ahead of TIME. That is wrong."

For twenty-three of his forty-one years as a TIME fixer, Mr. Dannenhirsch has been at the same location, a tiny shop of his own, where he deals in jewelry and hand painted china and gifts, on the side.

At first he was in a large shop in down town Seattle, but his mother shook her head.

"Do not work for another," she told him. "If you are good for someone else, you are good for yourself."

The advice of his mother he had found always to be good, so he established his own little place.

"Here," he said, "I try to do good work. So that when the war is over, and it is not so essential to have WATCHES and CLOCKS, and there is not so much money for the repair man, still they will say:

"Dannenhirsch is a good man. I will take my WATCH back to him."

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Every dollar from National Trust Fund No. 3 is going into the Fund so as to bring about better conditions for our Industry by keeping strong representation in Washington, D. C.

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* * *

Colorado Watchmakers

Held their Eleventh Annual State Convention in Denver, April 16.

Mr. R. W. Applegate, U. H. A. A. Washington, D. C., delegate addressed the group.

Apprentice Training program was presented and passed.

Officers elected:

President—Wolf C. Hansen.

Vice-President—E. M. Hewitt,

Sec'y.—C. D. Glenn,

National Trustee—Fred Weiss, of Greeley.

Los Angeles Guild

This progressive Guild held its regular meeting April 19th.

Chairman R. W. Applegate's letter of resignation was presented and accepted. The Board of Directors selected Mr. Austin Soper as Chairman, who took the chair at once.

The usual donation of a War Bond by some Member of the Industry was drawn by Mrs. S. P. Dayton.

Mr. Louis Hayman offered to present the Guild with an appropriate gavel. Offer was accepted.

Meeting was concluded with the showing of two motion pictures in color and sound.

Oklahoma Horological Association

Held its Annual State Convention in Oklahoma City, April 2nd, 3rd, and 4th.

Officers for the ensuing year are: President (re-elected) M. B. Smith of Pauls Valley; Secretary and Treasurer (re-elected) L. F. Wells of Tulsa; Vice-President, H. V. Gritz of Enid; Regional Vice-President, Eugene E. Parnell, Tulsa, Carl D. Hurst, Oklahoma, City, Riley Adkinson, Enid, Oklahoma, Thos. E. Bisanar, McAlister, Oklahoma, C. B. Moore, El Reno, Oklahoma.

Board of Directors: Florian D. Smith Midwest City; Bob Reneau, Oklahoma City.

Past President of the O.R.J.A., H. V. Gritz, gave a talk on "Harmony and Cooperation."

Delegate, Wm. H. Samelius of Elgin Watchmakers College, spoke on "Watch Trouble."

Entertainment by Kathryn Duffy girls at the Buffet supper, 6:30.

Closing of meeting was Travelers open house.

Over fifty members were present —seven new members were signed up and seventeen renewals. Things look very bright for Oklahoma.

Milwaukee Guild

Held its regular meeting April 25th. President C. G. Anderson, presiding.

Forty in attendance.

The Guild now has 88 members. The growth called for an additional advisor, Mr. Killian Kolbross was elected.

Four new active and two Student Members were signed up.

Due to misleading newspaper articles on Horology, a committee consisting of B. W. Heald and R. R. Miessner was appointed to correct the condition by having newspapers consult with the committee on all future articles, in order to be more accurate.

Memphis Guild, Tennessee

The Memphis Guild held its regular meeting March 27th at the Gayoso Hotel. Meeting was presided over by the President, Max Sandler.

The main speaker was Mr. Pearson. Mr. Malbury was toastmaster of the evening. Valuable attendance prizes were given. Over sixty-five people were present.

Mr. Gore who had recently been made a member of the Guild and who incidentally is State Representative, was also present.

Ground work was laid for some Legislative activity. Interest ran high and results are expected next year.

Collectors Organize

The collectors of old and unusual watches and clocks have formed a long wanted nationwide organization, called the NATIONAL ASSOCIATION OF WATCH AND CLOCK COLLECTORS.

This organization is a non-profit affair, being operated solely for the benefits of its members and is off to a very good start.

The Association was formed with an initial membership numbering slightly under 100, members coming from practically every state in the Union as well as from Hawaii, Canada, and Great Britain, much enthusiasm being shown.

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Inquiries are coming in from all places continuously, even from such distant places as Palestine.

Among the aims and objectives of this Association are: the obtaining of technical, historical and other data of interest to the collector; the interchange of such data and other information among members; the preservation of such data and information for posterity.

A bulletin is now circulated to the members, and this bulletin is endeavoring to carry information of interest to the members. A "mart" or "exchange" column is also included in the bulletin.

The national officers elected are as follows:

President, Robert Franks, 706 Lancaster Ave., Bryn Mawr, Pa.

Vice-president, Prof. Willis I. Milham, Williamstown, Mass.

Secretary-treasurer, L. D. Stallcup, 1813 Beechwood Ave., Nashville, Tennessee.

Members of the Board of Directors are as follows:

Mr. John J. Bowman, of the Bowman Technical School, Lancaster, Pa.

Mr. Edward Ingraham, Clock Mfgr., Bristol, Conn.

Sgt. Ira W. Leonard, 1345 Chester Ave., Denver 8, Colo. (Instrument technician.)

Mr. Jean Louis Roehrich, Graduate Watchmaker, 589 Fifth Ave., New York.

Pres. Franks was formerly Director of the Franklin Institute, of Philadelphia, Pa., and is past chairman of the Historical Committee of the H. I. A.

Vice-president Milham is Prof. of Astronomy at Williams college, and is the author of the well-known book, "Time and Timekeepers."

Secretary, L. D. Stallcup, is chairman of the Historical Committee of the H. I. A., a member of the U. H. A. A., the B. H. I., a watchmaker and author of articles on horology.

These officers are now working on the formation of the constitution and by-laws, designing an insignia, and such other things as are required to finish the formation of the organization.

Local chapters of this national association are being formed in several of the major cities, Mr. Herbert Fleisher, 6903 Broad street, Philadelphia, being the secretary of Philadelphia Chapter No. 1 of the N. A. of W. and C. C.

Membership in the association is open to persons interested in the study of, or the collecting of old and/or unusual timepieces.

Further details may be had from L. D. Stallcup, secretary, 1813 Beechwood, Ave., Nashville 5, Tenn.

Polishing Jewel Bearings

Wilmington, Delaware, March — A single strand of nylon polishes jewel bearings for Navy precision instruments in a new use in which the synthetic monofilaments are replacing wood or copper wire. The Plastics Department of E. I. du Pont de Nemours & Co. submitted nylon for evaluation in this application to the Adolf Meller Company, Providence, R. I.

The Meller Company found .015-inch diameter nylon in one-inch lengths ideal for the delicate operation of giving the tiny bearing holes in the gems a highly polished finish. Nylon did not chip the jewels, held very well the diamond dust used in polishing, and had superior life

Examination under 20x magnification showed surfaces polished with nylon scratch-free. Two other firms have now adopted nylon for the same operation.

Demand For Victorian Antiques

Hold on to your antiques of the Victorian period is the tip to women of America from their cousins overseas, according to PATHFINDER.

"A wave of treasure-hunts for Victorian furniture and bric-a-brac, with special accent on old-fashioned lockets, fobs, chains and cameos, is reported from London," the news weekly says.

"Among collectors' items being singled out are fans, vases, lustreware miscellaneous ornaments, knives, table napkin rings bottles, hair tidies, dish covers, artificial flowers, trinkets, silk curtains and ormulu clocks in glass cases.

"Rare old jewelry and costuming effects are especially prized. Old buttons have become objects of desire and a good collection is worth money."

Limited Number of Electric Alarm Clocks to Be Distributed by General Electric

BRIDGEPORT, CONN.—In compliance with OPA and WPB rulings and directive orders the General Electric Company will begin the distribution of a limited number of electric alarm clocks within the next few weeks, according to M. B. Ross, Traffic appliance sales manager of the company's appliance and Merchandise department.

Recent government-sponsored surveys have shown the critical need for alarm clocks and material has now been released for the production of as

many clocks as possible without interfering w ith war orders. It has been pointed out that, although as many clocks as possible will be manufactured, their production necessarily will fluctuate because of changing requirements for military needs, and will be subject to conditions beyond the company's control.

The clocks will not carry a trade name of any manufacturer, having been designated "'war alarm," which is printed on the face. Only one model will be offered for sale and it was pointed out that G-E never distributed a comparable prewar model. However it carries a regular standard guarantee and is not of inferior quality. Except for m i nor non-operating parts, the materials are the same as those in prewar-model clocks.

General Electric regular prewar distributors will receive the first shipments shortly, and retailers will be able to offer the clocks for sale to the general public around May 1.

The WPB has established quotas for each geographical area within the Unite d States, based on the distribution of electric clock sales in 1941 and adjusted to compensate for population shifts since that year, as indicated by Department of Commerce figures. Within each geographical area the n umber of clocks to be distributed is based on the 1941 purchases of the distributor in that area in relation to the company's 1941 sales.

The OPA maximum retail price of the clocks has been set at $4.95 each. But this price does not include any present or future sales or use tax, or any revenue, excise or other tax which may be applicable to the "war alarm" clock.

The warranty tag enclosed with each clock says "to be repaired, it should be returned to the dealer from whom it was purchased, or to lock box 389, Ashland, Mass." All authorized General Electric Clock Service stations however are equipped to handle both in and out-of- guarantee repairs.

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Avoid Rust

We hear lots about the prevention of rust from watch material, especially on those parts that are placed in small bottles and only used after a long lay-away period. One simple trick is to put a small piece of blotting paper in the bottle to absorb moisture. You will find that when this practice is put into use, very seldom will you discover such parts as balance staffs, springs, etc., rusty.

Service From Your Watch

Importer and Manufacturer

Many complaints have been registered in our officers as well as directly to importers and manufacturers of watches, regarding parts, repair service, etc, on new and customer watches.

We know how the trade feels but does this trade know how the manufacturer and importer feels and what they are confronted with?

Our survey reveals these facts. Most manufacturers and importers are 8 to 9 months behind in their service departments due to several causes. They have lost a major portion of craftsmen to the Jeweler who could out bid the factories and importers on salaries as WPB froze the ceiling pay.

We ask all who are finding fault with those concerned in trying to service you that you be tolerant and understanding.

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Instrument Repairing

More Clocks

Production for the second quarter of 1944 of 1,200,000 war alarm clocks, many of which must go to fill military requirements, was estimated at a meeting of the Non-Jeweled Clock & Watch Manufacturers Industry Advisory Committee, War Production Board officials said today

Some electric alarm clocks will be produced and distributed during the second quarter, and a limited quantity of non-jeweled low-priced wrist watches may be authorized for distribution to nurses, student nurses and nurses aides, WPB said. Details of the plan will be announced shortly.

The volume of production for civilian alarm clocks and timepieces of all t y pes is dependent directly upon the needs for war material that can be supplied only by this industry, and the supply of labor. The committee indicated that all clock and watch producers are experiencing difficulty in obtaining workers. Until the labor situation eases, there is very little chance that production can be increased over the present rate.

Lab for L & R

In a spacious, high-ceilinged room with a glass brick wall, L & R has established a complete, modern laboratory. Here, production control tests are run continually on L & R Watch Cleaning and Rinsing Solutions, L & R Plastic Watch Crystal Cement, Ellanar Jewelry Cleaner and Efco Watch Cleaning and Rinsing Fluids.

Thorough, scientific methods and apparatus are utilized to maintain the uniformity and effectiveness of all L & R Chemical Compounds. Further tests are made in L & R Watch Cleaning Machines, in one or more of the several models, to check the watch cleaning solutions under actual operating conditions.

No effort is too great, no test too stringent to keep L & R Products the finest of their kind and worthy of use by every watchmaker and jeweler who has come to regard L & R as the criterion producer in its field.

Research in the laboratory is resulting in the preparation of new products for use or sale by watchmakers and jewelers. Several are now ready for marketing and will be released to the trade as soon as conditions permit.

The L & R Laboratory is under the direct supervision of a graduate, research chemist with many years experience in the production of quality metal cleaning compounds and allied products.

The laboratory occupies part of the northeast wing in the new plant of the L & R Manufacturing Company, located at 577 Elm street, Arlington, New Jersey.

The trade is invited to submit unusual cleaning problems to the attention of L & R Chemists for solution. There is no charge for such a service and much can be learned by working out answers to cleaning problems in the most scientific manner possible.

June Hamilton Rhodes Fashion Consultant For Palladium In Jewelry

The Platinum Metals Division of The International Nickel Company, Inc., has made arrangements with June Hamilton Rhodes to assist in its activities designed to feature palladium in the jewelry field.

A New Company

A concern by the name of the Alma Service Company, office at 76 Bowery, factory at 82 Bowery, New York City, has recently opened under the ownership of Al B. Greenburg and management of Harold Lulkin, which is really unique. Their slogan is "A complete service to the retail jeweler." This concern is equipped and have facilities to handle such a service which includes over 27 different items in repair service and the same amount of items acting as manufacturers, distributors and resident buyers, from watches to cameras. Covering such a field of sales and service is really ac omplete service to the retail jeweler.

C. & E. Marshall Company Opens "Loop Show Room"

In a new office location, having a beautiful view of the wide expanses of Lake Michigan, the Marshall Company has opened a modern and comfortably appointed show room. The display of tools, equipment and other products manufactured by themselves is extensive and coupled with the display of their general line of merchandise, makes this show room a most attractive place to visit.

Ample and finely equipped space is provided for those that wish to rest up a bit, write letters, etc. A unique feature is the display of modern watch repair, department equipment including bench, lathe, cabinets of material and various other up-to-date necessities.

Mr. J. F. Macke is in charge and he and C. & E. Marshall Company extend a hearty invitation to visit, when in Chicago, in their new downtown location, 1222 Garland Bldg., corner Washington and Wabash, as well as their West Side office and plant at 1445 West Jackson Boulevard.

U. S. Time Corporation For Full Postwar Employment

The United States Time Corporation, prewar manufacturers of Ingersoll watches and clocks, has started a survey among its 5,100 war workers to learn how many are interested in remaining with the company after hostilities cease and civilian production of time pieces and other precision instruments is resumed.

A questionnaire submitted to all employees suggests the possibility of a postwar housing development on property adjacent to the new, modern plant on Ingersoll Hill, Middlebury.

Other inquiries in the survey point to the manufacturer's intention to prepare for conversion from war to peacetime output as quickly as military needs are fulfilled. Since June, 1941, the company has turned out tons of vitally essential precision items for the Armed Forces of the United States and its Allies.

In connection with the check-up, the company has announced its intention to try to maintain "full employment" in addition to providing jobs for its men and women returning from service in the Armed Forces.

Hill-Tolchin Company

Announcement is made by the Hill-Tolchin Co., progressive wholesale jewelry watch material, and supply house, at 5 North Wabash Avenue, Chicago, that an ever increasing force of travelers will soon represent them in the Middle West, South and Western territories. This organization which has managed to keep men on the road during all these trying days since Pearl Harbor have now added to their staff Abe Salam, a recently honorable discharged veteran o f World War II, who is being taken out to the West Coast by Phillip Tolchin, also an honorable World War II discharges and one of the owners of the firm. Mr. Salam will remain as the company West Coast resident representative with available stocks of materials, findings, and merchandise being supplied right on the spot from quarters there.

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By W. C. Roy

Since so many watchmakers have been so kind as to let us in on the few tricks, I would like to give one too.

The one I have in mind is a quick easy way to replace a regulator pin as in Swiss watches where a flat hairspring is used. This pin is broken by watchmakers bending same to release hairspring instead of turning block as was intended. So, if pin is not broken off, flush stone it off. Now take a "mascot" drill 4 or 6 and drill hole from top thru center of old pin that is still in regulator. Now take a small pivot brooch and ream slightly from top to taper ball. Now take a hairspring pin and force down hole from top; cut off a little short at small end then measure or mark and remove pin. (hold in pin vice) and flatten on 2 sides like old pin was. Then put back in ball and tap with hammer until end comes even with projection of regulator block cut off, stone flush and the job is done.

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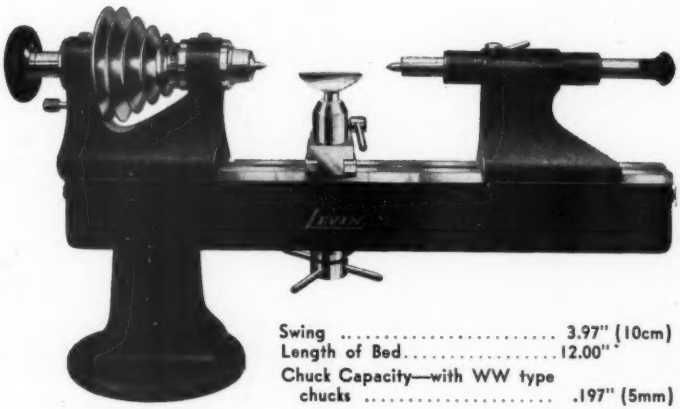

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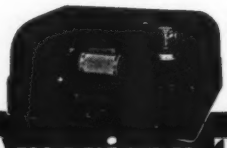

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